Taxonomy of the genus *Ainu* Lewis, 1894 (Coleoptera: Tenebrionidae) from China, with description of a new species

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Abstract: The taxonomy of *Ainu* Lewis, 1894 from China is discussed. The new species, *Ainu sichuanus* sp. nov., is described, including a key to the species of *Ainu* from China. A distribution map of Chinese species of *Ainu* is provided.

Key words: darkling beetles; *Ainu sichuanus*; taxonomy; key

中国铜轴甲属分类研究及一新种记述（鞘翅目：拟步甲科）

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摘要：对中国铜轴甲属进行了分类总结，记述 1 新种——四川铜轴甲 *Ainu sichuanus* sp. nov.，编制了已知种检索表，绘制了中国种的地理分布图。

关键词：拟步甲；四川铜轴甲；分类；检索表

Introduction

Ainu is a genus in the tribe Cnodalonini, Lewis (1894) created the new genus for *A. tenucornis* with the type species from Japan, then *A. masumotoi* (Japan) and *A. fukudai* (China) were respectively described by Nakane (1968) and Masumoto (1981). Ren and Yuan (2005) added the following three Chinese species to *Ainu*: *A. angustus*, *A. grandis* and *A. medoganus*, and Ruzzier (2014) described *A. andoi* from China (Yunnan) and Laos. So far, seven species of the genus *Ainu* Lewis were known in the world, of which five species are from China.

Last August, the authors visited the California Academy of Sciences and found three specimens of *Ainu* from China. We describe one specimen as a new species under the name *Ainu sichuanus* sp. nov. (China: Sichuan) and provide a key to the *Ainu* species from China. Besides, a distribution map of Chinese species of *Ainu* is presented.

Material and methods

The type specimen is deposited in the California Academy of Sciences, San Francisco,

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USA. The specimen was examined under a Nikon (SMZ800) dissecting microscope. Measurements were taken and photographs captured using a Leica (M205 A) dissecting microscope. All measurements are in millimeters.

The following abbreviations are used: ie/ed — the ratio of distance between eyes and the transverse diameter of an eye; am — ratio of the length of antennomeres II–XI; pw/pl — width/length ratio of pronotum; el/ew — length/width ratio of elytra; el/pl — length ratio elytra/pronotum; ew/pw — width ratio elytra/pronotum; lm — ratio of the length of metatarsomeres I–IV.

Taxonomy

Key to species of *Ainu* from China

1. Body robust, el/ew less than 2.3 ······ 2
-. Body slender, el/ew more than 2.3 ······ 4
2. Lateral margins of pronotum visible from above ······ *A. grandis*
-. Lateral margins of pronotum invisible from above ······ 3
3. Ie/ed less than 1.5, pw/pl = 1.5 ······ *A. andoi*
-. Ie/ed more than 1.5, pw/pl = 1.33 ······ *A. medoganus*
4. Scutellum triangular ······ 5
-. Scutellum widely liguliform ······ *A. fukudai*
5. Frontoclypeal suture nearly straight at median, pw/pl = 1.2, apicale very weakly dorsally curved in lateral view, ratio of the length of apicale and aedeagus: 0.32 ······ *A. angustus*
-. Frontoclypeal suture weakly arcuate, pw/pl = 1.37, apicale distinctly dorsally curved in lateral view, ratio of the length of apicale and aedeagus: 0.45 ······ *A. sichuanus* sp. nov.

1. *Ainu angustus* Ren & Yuan, 2005 (Fig. 1A)

Ainu angustus Ren & Yuan, 2005: 99.

Specimens examined. 1♂ (Holotype), Guangxi, Mt. Shengtang (900 m), Jinxiu (24.1ºN, 110.1ºE), 18-V-1999, Xingke YANG leg.; Paratypes. 2♀, Sichuan, Huangjing, Luzhou, 16-VII-2002, Ming BAI & Jianfeng WANG leg.

Distribution. China (Guangxi, Sichuan).

2. *Ainu fukudai* Masumoto, 1981 (Fig. 1B)

Ainu fukudai Masumoto, 1981: 41.

Specimens examined. 1♂1♀, Mt. Dahan, Pingdong, Taiwan, 05-V-2009, Wenyi ZHOU leg.

Distribution. China (Taiwan).

3. *Ainu grandis* Ren & Yuan, 2005 (Fig. 1C)

Ainu grandis Ren & Yuan, 2005: 98.

Specimens examined. 1♂ (Holotype), Guangxi, Linhaishanzhuang (1000 m), Jinxiu (24.1 N, 110.1 E), 02-VII-2000, Jun CHEN leg. Paratypes. 1♂, Guangxi, Luoxiang (450 m), Jinxiu, 30-VI-2000, Jun CHEN leg.; 1♀, Guangxi, Huawangshanzhuang (600 m), Jinxiu, 20-V-1999, Wenzhu LI leg.

Distribution. China (Guangxi).

4. *Ainu medoganus* Ren & Yuan, 2005 (Fig. 1D)

Ainu medoganus Ren & Yuan, 2005: 100.

Specimens examined. 1♂ (Holotype), Xizang, Mêdog County, 1300 m, 14-VII-2003, Guodong REN leg.

Distribution. China (Xizang).

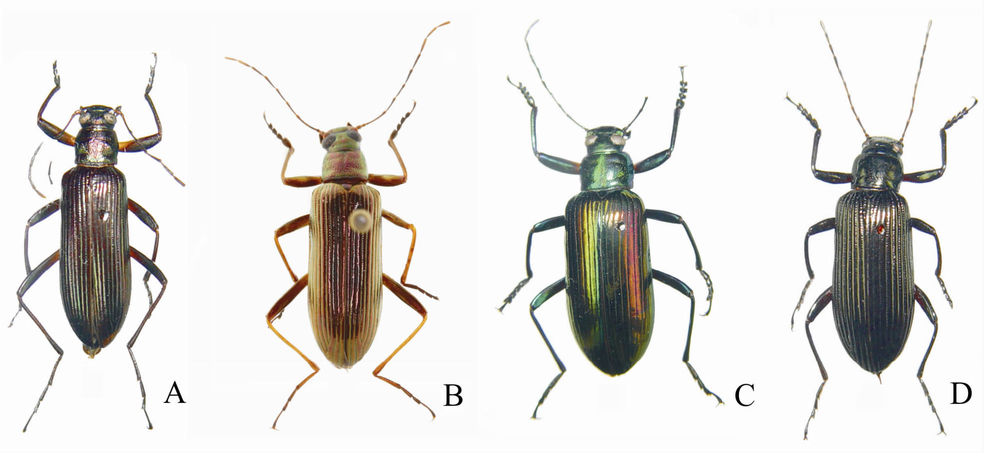

Figure 1. A. *A. angustus* Ren & Yuan, 2005; B. *A. fukudai* Masumoto, 1981; C. *A. grandis* Ren & Yuan, 2005; D. *A. medoganus* Ren & Yuan, 2005. Habitus, dorsal view.

5. ***Ainu sichuanus*** **sp. nov.** (Fig. 2)

Male. Elongate, cylindrical, yellowish brown, basal 1/2 of head, pronotum except anterior and posterior margins, antennomeres VI−VIII and apical 1/2 of femora, tibiae blackish brow; dorsum with greenish and little purplish reflection, head with vague shine, pronotum and elytra strongly shining, ventral surface except ventrite IV−V vaguely shining, ventrite IV−V moderately strongly shining.

Head (Fig. 2B). Clypeus sparsely, indistinctly punctuate, each puncture with a microscopic hair, frontoclypeal suture weakly arcuate, finely grooved, extending out margins; genae weakly raised anterolaterad with subrectangular out margins; frons wide, moderately abruptly inclined forward, indistinctly and longitudinally impressed in middle, sparsely punctuate, ie/ed: 0.8. Eyes medium sized, moderately protruding exteriad. Antennae slender (Fig. 2D), filiform, reaching basal 1/2 of elytra, AM: 0.17, 1.10, 0.63, 0.7, 0.73, 0.78, 0.8, 0.78, 0.74, 0.82. Maxillary palpomeres IV moderately expanded.

Pronotum (Fig. 2C). Transverse, pw/pl: 1.37, widest in middle, gradually narrowed anteriorly, constricted at basal 1/4; anterior margin very weakly arcuate posteriad, border tapering exteriad, nearly impunctate; posterior margin very weakly bisinuate, bordered, nearly impunctate; lateral margins bordered, visible at apical 1/2 in dorsal view; dorsum weakly convex, impunctate along median line, impressed at basal 1/3 on both sides, convex at base behind impressions; disc covered with sparse, moderately large punctures, anterior and posterior angles subrectangular. Scutellum triangular, nearly impunctate.

Elytra. el/ew: 2.55, pl/el: 5.72, pw/ew: 1.64, widest at apical 1/3; dorsum very weakly convex; elytral striae finely and closely punctuate, intervals weakly convex, sparsely and transversely aciculate.

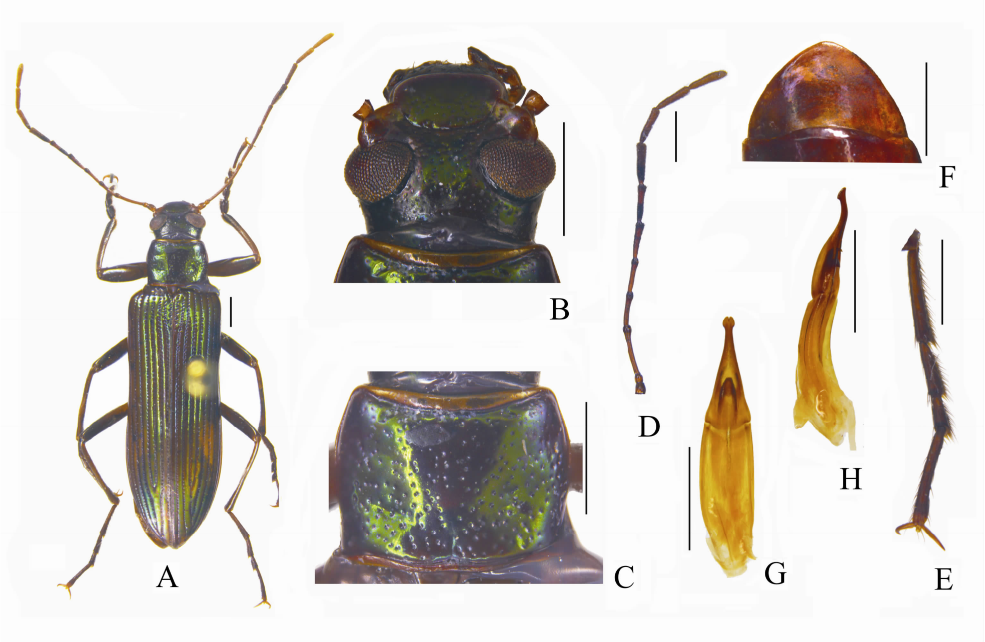

Figure 2. *Ainu sichuanus* sp. nov., holotype. A. Habitus, dorsal view; B. Head, dorsal view; C. Pronotum, dorsal view; D. Antenna; E. Metatibia; F. Ventrite V; G. Aedeagus, dorsal view; H. Aedeagus, lateral view. Scale bars = 1 mm.

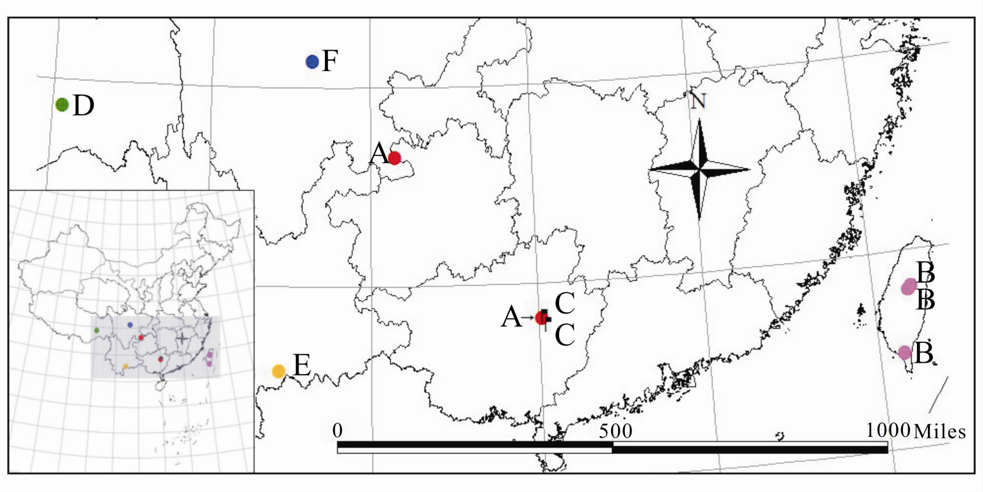

Figure 3. Distribution of Chinese species of the genus *Ainu* Lewis. A. *A. angustus* Ren & Yuan, 2005; B. *A. fukudai* Masumoto, 1981; C. *A. grandis* Ren & Yuan, 2005; D. *A. medoganus* Ren & Yuan, 2005; E. *A. andoi* Ruzzier, 2014; F. *A. sichuanus* sp. nov.

Prosternum narrow between procoxal cavities, without impression in middle, gradually inclined posteriad. Abdomen shagreened, ventrite I–III sparsely punctuate and wrinkled, ventrite IV sparsely punctuate, ventrite V very sparsely and indistinctly punctuate, acutely rounded at apical edge (Fig. 2F). Legs moderately long, LM: 1.20, 0.65, 0.37, 1.20 (Fig. 2E).

Aedeagus 2.51 mm long, 0.53 mm wide, apicale long 1.14 mm (Figs. 2G, H).

Body length: 11.6 mm; body with: 3.4 mm.

Female. Unknown.

Holotype. ♂, labeled **China,** Sichuan Province, Chengdushi, Dayixian, Xilingxueshan, 1300 m, 17/18-VI-1992. "no collector".

Distribution. China (Sichuan).

Remarks. This species is similar to *Ainu angustus* Ren & Yuan, but can be distinguished from the latter by frontoclypeal suture weakly arcuate, pronotum more transverse, intervals sparsely aciculate, without punctures, aedeagus shaped differently (Ren and Yuan 2005: Figs. 25, 27).

Etymology. This new species is named after the type locality Sichuan Province, China.

Geographic distribution. All Chinese species (including this new species) are only distributed in the Oriental Region; five species are found in the Southwest Region and one in the South China Region (Fig. 3).

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